



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-23706; Directorate Identifier 2006-NE-03-AD]

RIN 2120-AA64

Airworthiness Directives; Honeywell International Inc. Turboprop Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede airworthiness directive (AD) 2006-15-08, which applies to all Honeywell International Inc. TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -10, -10AV, -10GP, -10GT, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12JR, -12UA, -12UAR, and -12UHR turboprop engines with certain part numbers (P/Ns) of Woodward fuel control unit (FCU) assemblies, installed. AD 2006-15-08 currently requires initial and repetitive dimensional inspections of the fuel control drive spline for wear, and replacement of the FCU and fuel pump. Since we issued AD 2006-15-08, we determined that additional FCU assembly P/Ns are affected, the compliance deadline and assembly replacement after removal for cause or overhaul are no longer required, and that cautionary engine operating information must be observed. This proposed AD was prompted by reports of loss of the fuel control drive, leading to engine overspeed, overtorque, overtemperature, uncontained rotor failure, and asymmetric thrust in multi-engine airplanes. This proposed AD would require initial and repetitive dimensional inspections of the affected fuel control drive splines, and insertion of certain airplane operating procedures into the applicable flight manuals. We are

proposing this AD to prevent failure of the fuel control drive that could result in damage to the engine and airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Honeywell International Inc., 111 S 34th Street, Phoenix, AZ 85034-2802; phone: 800-601-3099; Internet: <https://myaerospace.honeywell.com/wps/portal!/ut/>. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2006-23706; or in person at the Docket

Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Joseph Costa, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; phone: 562-627-5246; fax: 562-627-5210; email: joseph.costa@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2006-23706; Directorate Identifier 2006-NE-03-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On July 14, 2006, we issued AD 2006-15-08, Amendment 39-14688 (71 FR 41121, July 20, 2006), for all Honeywell International Inc. TPE331 series turboprop engines with certain P/Ns of Woodward FCU assemblies installed. AD 2006-15-08 requires initial and repetitive dimensional inspections of the fuel control drive spline for wear that might cause replacement of the FCU and/or fuel pump assemblies. AD 2006-15-08 also requires the replacement of the FCU assembly when the FCU is removed for cause or overhaul, but not later than December 31, 2012. AD 2006-15-08 was prompted by fuel control drive failures that resulted in a rapid, uncommanded, uncontrolled increase in fuel flow and overspeed of the engine during ground start. We issued AD 2006-15-08 to prevent failure of the fuel control drive, destructive overspeed that could result in uncontained rotor failure and damage to the airplane.

Actions Since AD 2006-15-08 Was Issued

Since we issued AD 2006-15-08, Amendment 39-14688 (71 FR 41121, July 20, 2006), we determined that additional FCU assembly P/Ns are affected, certain repetitive fuel control drive inspections are necessary, and that additional flight crew emergency procedures and warnings are required. The warnings are required to inform flight crew of the probable engine response(s) following a loss of drive between the engine driven fuel pump and fuel control governor system. These engine responses are dependent on the phase of operation (ground engine start, ground or flight operations).

Also since we issued AD 2006-15-08, Amendment 39-14688 (71 FR 41121, July 20, 2006), we reviewed the in-service trends and engine in-flight shutdowns (IFSDs)

caused by the modified FCU and determined that the IFSD rate had not improved and the installation of the modified FCU assembly was not required.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require continued dimensional spline inspections required by AD 2006-15-08, add new P/Ns of affected FCU assemblies that require dimensional spline inspections. This proposed AD would require insertion of uncommanded engine overspeed procedures into the Airplane Flight Manual, Pilot Operating Handbook, and or Manufacturer's Operating Manual. This proposed AD would retain some but not all requirements of AD 2006-15-08, (71 FR 41121, July 20, 2006), but would no longer require the installation of a modified FCU.

Costs of Compliance

We estimate that this proposed AD would affect 2,250 engines installed on airplanes of U.S. registry. We estimate that it would take 8 hours per engine to perform an FCU inspection, and three inspections will be required over the life of the product. The average labor rate is \$85 per hour. Due to the more frequent inspections proposed by this AD, we estimate 10% of affected engines would require FCU assembly stub shaft replacement, fuel pump or fuel control repair. We also estimate that repairs should not exceed \$10,000 per engine. Based on these figures, we estimate the cost of this proposed AD on U.S. operators to be \$6,307,044.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, “General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),

(3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and

(4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Amend § 39.13 by removing airworthiness directive (AD) 2006-15-08, Amendment 39-14688 (71 FR 41121, July 20, 2006), and adding the following new AD:

Honeywell International Inc.: Docket No. FAA-2006-23706; Directorate Identifier 2006-NE-03-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD supersedes AD 2006-15-08, Amendment 39-14688 (71 FR 41121, July 20, 2006).

(c) Applicability

This AD applies to all Honeywell International Inc. TPE331-1, -2, -2UA, -3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -10, -10AV, -10GP, -10GT, -10P, -10R, -10T, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12JR, -12UA, -12UAR, and -12UHR turboprop engines with the part numbers (P/Ns) of Woodward fuel control unit (FCU) assemblies listed in Table 1 to paragraph (c) of this AD, installed.

Table 1 to Paragraph (c) – Affected FCU Assembly P/Ns

Group #	Engine	FCU Assembly P/Ns
1	TPE331-1, -2, and -2UA	P/N 869199-13, -20, -21, -22, -23, -24, -25, -26, -27, -28, -29, -31, -32, -33, -34, and -35
2*	TPE331-1, -2, and -2UA	P/N 869199-9, -10, -11, -12, -14, -16, -17, and -18
3	TPE331-3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -10AV, -10GP, -10GT, -10P, and -10T	P/N 893561-7, -8, -9, -10, -11, -14, -15, -16, -20, -26, -27, and -29; or P/N 897770-1, -3, -7, -9, -10, -11, -12, -14, -15, -16, -25, -26, and -28
4*	TPE331-3U, -3UW, -5, -5A, -5AB, -5B, -6, -6A, -10AV, -10GP, -10GT, -10P, and -10T	P/N 893561-4, -5, -12, and -13 or P/N 897770-5, -8, and -13
5	TPE331-10, -10R, -10U, -10UA, -10UF, -10UG, -10UGR, -10UR, -11U, -12JR, -12UA, -12UAR, and -12UHR	P/N 897375-2, -3, -4, -5, -8, -9, -10, -11, -12, -13, -14, -15, -16, -17, -19, -21, -24, -25, -26, and -27; or P/N 897780-1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -14, -15, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -30, -32, -34, -36, -37, and -38; or P/N 893561-17, -18, and -19

* New/added FCU assembly P/Ns

(d) Unsafe Condition

This AD was prompted by reports of loss of the fuel control drive, leading to engine overspeed and engine failure. We are issuing this AD to prevent damage to the engine, and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) Inspection of Engines with FCU Assembly P/Ns in Groups 2 and 4

For FCU assembly P/Ns in Groups 2 and 4 listed in Table 1 to paragraph (c) of this AD, at the next scheduled inspection of the fuel control drive, or within 500 hours-in-service (HIS) after the effective date of this AD, whichever occurs first:

(i) Inspect the fuel control drive spline for wear.

(ii) Thereafter, re-inspect the fuel control drive within 1,000 HIS since-last-inspection (SLI) of the fuel control drive.

(2) Inspection of Engines with FCU Assembly P/Ns in Groups 1, 3, and 5

(i) For FCU assembly P/Ns in Groups 1, 3, or 5 listed in Table 1 to paragraph (c) of this AD:

(A) If on the effective date of this AD the FCU assembly has 950 or more HIS SLI, inspect the fuel control drive spline for wear within 50 HIS from the effective date of this AD.

(B) If on the effective date of this AD the FCU assembly has fewer than 950 HIS SLI, inspect the fuel control drive spline for wear before reaching 1,000 HIS.

(ii) Thereafter, re-inspect the fuel control drive spline for wear within every 1,000 HIS SLI.

(3) Airplane Operating Procedures

Within 60 days after the effective date of this AD, insert the information in Figure 1 to paragraph (e) of this AD, into the Emergency Procedures Section of the Airplane

Flight Manual (AFM), Pilot Operating Handbook (POH), and the Manufacturer's Operating Manual (MOM).

Figure 1 to Paragraph (e) – Operating Procedures

Loss of Fuel Control Drive Procedures

NOTE

Procedures in boxes are immediate action items to be performed by the pilot / flight crew.

PROPELLER ON START LOCKS:

WARNING

If a fuel control drive fails during ground engine starts with the propeller ON the start locks, the engine will experience a rapid uncommanded, uncontrolled acceleration to an overspeed condition sufficient to cause an uncontained separation of high speed rotating components.

RAPID, UNCOMMANDED ACCELERATION DURING ENGINE START (Propeller ON Start Locks)

- Engine Start – Abort Immediately

WARNING

Do not attempt a re-start until after inspecting the fuel control drive and rotating components in accordance with the applicable maintenance manual.

PROPELLER OFF START LOCKS:

WARNING

If a fuel control drive fails during ground or flight operations with the propeller OFF the start locks, the engine will experience a rapid uncommanded, uncontrolled increase and/or oscillations in RPM, torque and/or turbine

temperature (the engine may exceed RPM, torque and/or temperature limits) and increased forward thrust. Reverse thrust will not be available. For multi-engine airplanes an uncommanded fuel flow increase on only one engine could result in significant asymmetric thrust. Therefore, an uncontrolled fuel flow increase is most serious when it occurs to one engine with the opposite engine at a relatively low power setting, such as during an approach or during the landing rollout. Carefully identify failed engine.

**RAPID, UNCOMMANDED INCREASE IN RPM,
TORQUE, FUEL FLOW AND/OR TURBINE
TEMPERATURE (Propeller OFF Start Locks)**

- Identify Malfunctioning Engine (multiengine airplane) – Cross check for high torque, RPM, fuel flow and turbine temperatures.
- Power – Move Power Lever to or toward Flight Idle as required to maintain engine limits.

WARNING

Never retard the power levers aft of flight idle in flight or on the ground.

- If limits cannot be maintained or engine is non-responsive, shut engine down as soon as possible consistent with safe operation of the airplane.

WARNING

Do not attempt a re-start until after inspecting the fuel control drive and rotating components in accordance with the applicable maintenance manual.

(f) Optional Terminating Action

Replacing the affected FCU assembly with an FCU assembly P/N not listed in this AD is terminating action for the initial and repetitive inspections required by this AD, and for inserting the information in Figure 1 to paragraph (e) of this AD into the AFM, POH, and MOM.

(g) Definitions

For the purposes of this AD:

(1) The “fuel control drive” is a series of mating splines located between the fuel pump and fuel control governor.

(2) The fuel control drive consists of four drive splines: the fuel pump internal spline, the fuel control external “quill shaft” spline, and the stub shaft internal and external splines.

(h) Alternative Methods of Compliance (AMOCs)

The Manager, Los Angeles Aircraft Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(i) Related Information

(1) For more information about this AD, contact Joseph Costa, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; phone: 562-627-5246; fax: 562-627-5210; email: joseph.costa@faa.gov.

(2) Honeywell International Inc., AFM, POH, and MOM, which are not incorporated by reference in this AD, can be obtained from Honeywell International Inc., using the contact information in paragraph (i)(4) of this AD.

(3) Information pertaining to operating recommendations for affected engines after a fuel control drive failure is contained in Honeywell International Inc., Operating Information Letter (OIL) OI331-12R6, dated May 26, 2009, for multi-engine airplanes; and in OIL OI331-18R4, dated May 26, 2009, for single-engine airplanes. Information on fuel control drive spline inspection can be found in Section 72-00-00 of the applicable

TPE331 maintenance manuals. These Honeywell International Inc., OILs and the TPE331 maintenance manuals, which are not incorporated by reference in this AD, can be obtained from Honeywell International Inc., using the contact information in paragraph (i)(4) of this AD.

(4) For service information identified in this AD, contact Honeywell International Inc., 111 S. 34th Street, Phoenix, AZ 85034-2802; Internet: <https://myaerospace.honeywell.com/wps/portal/!ut>; phone: 800-601-3099.

(5) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on March 10, 2014.

Colleen M. D'Alessandro,
Assistant Directorate Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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